

### **Lack of association between tonsillectomy and subsequent appendicectomy**

The palatine tonsils and the vermiform appendix are major components of gut-associated lymphoid tissue. Both are markedly more prominent in children. Tonsillectomy and appendicectomy are relatively common operations in childhood. We speculated that there might be a positive association between these 2 surgical procedures, either because some individuals have a more florid lymphoid reaction to antigen exposure making them more at risk for symptomatic lymphoid enlargement or because tonsillectomy removes an important gatekeeper defense mechanism from the entrance to the gut, thereby increasing exposure of the appendix to foreign antigens.

In support of this hypothesis, one previous retrospective study found an association between tonsillectomy and appendicectomy (1). In this cross-sectional study of 650 adults attending an emergency department of a general hospital in Spain, the prevalence of tonsillectomy and appendicectomy was 25.5% and 17.5%, respectively. Almost 50% of those who had undergone tonsillectomy also reported having had their adenoids removed. Appendicectomy was 3 times more likely in patients who had previously undergone tonsillectomy, an effect that was more marked in women (odds ratio [OR], 5.20; 95% confidence interval, 2.91-9.28). However, because the median age of the study sample was 45 years and median age at tonsillectomy ( $n = 165$ ) and appendicectomy ( $n = 113$ ) was 6 years and 20.5 years, respectively, the data may well have been flawed by recall bias.

We decided to explore the hypothesis that appendicectomy is more common after previous tonsillectomy using prospectively derived longitudinal data from the Christchurch Health and Development Study, Christchurch, New Zealand (2). In this project, a cohort of

1265 children born in Christchurch, New Zealand, in 1977 have been studied from birth. The data were collected with signed consent from research participants and after ethical approval from the Canterbury ethics committee. The rates of tonsillectomy with or without adenoidectomy (12.2%) and appendicectomy (5.6%) in the cohort at 25 years are shown in the Table 1. The median (range) age at tonsillectomy was 6 years (2-16 years) and for appendicectomy, 13 years (5- 24 years). For the total cohort, the rate of appendicectomy was slightly higher among those with a history of tonsillectomy. Consistent with the Spanish study, this increase in risk appeared to be limited to females. However, in all cases the associations were modest at best (ORs, 0.8- 1.9) and statistically nonsignificant.

#### INSERT TABLE 1 HERE

The rate of appendicectomy is likely to increase as the cohort matures, but because appendicitis in industrialized countries predominantly affects individuals younger than 25 years (3), it is unlikely that this will lead to any dramatic change in the strength of the association between appendicectomy and previous tonsillectomy. Some appendices removed for suspected appendicitis are ostensibly normal, but this proportion is usually less than 10%, so this factor is also unlikely to significantly affect the results. For this large prospective cohort of individuals, the hypothesis that tonsillectomy leads to increased risk of subsequent appendicectomy is not supported and probably does not merit further investigation.

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## References

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<http://www.chmeds.ac.nz/research/chds/> (Accessed October 29, 2007).
3. Primatesta P, Goldacre MJ. Appendicectomy for acute appendicitis and for other conditions: an epidemiological study. *Int J Epidemiol* 1994;23:155-60.

Table 1. Rates (%) of appendicectomy in the Christchurch Health and Development Study Cohort (to 25 years) by sex and previous tonsillectomy.

	Tonsillectomy			OR (95% CI)	p
	No	Yes	Total		
Male	6.6 (28/246)	5.3 (3/57)	6.4 (31/483)	0.8 (0.2-2.7)	.70
Female	4.4 (19/437)	7.9 (5/63)	4.8 (24/500)	1.9 (0.7-5.3)	.21
Total	5.5 (47/863)	6.7 (8/120)	5.6 (55/983)	1.4 (0.7-2.8)	.58